Electronic Version
Stylesheet Version v1.1.1

Claims

[c1] 1. An apparatus for attaching a proximity probe offset to an axis defining a metal probe case and an extension cable extending therefrom comprising:
a metal interface cup securing the proximity probe therewith; and
a metal probe case configured with a first bore extending from one side toward an axis defining a length of said metal probe case, said bore configured to accept said metal interface cup while leaving a tip of the proximity probe exposed, a bottom surface defining said metal interface cup opposite said tip mates with a first surface defining a closed end of said first bore, said metal probe case is further configured with a second bore extending from a substantially opposite side of said one side, said second bore extending perpendicular from a surface defining said opposite side, wherein only a portion of said second bore intersects said first surface of said first bore creating a through hole into said first bore;
wherein when said metal interface cup is disposed in said first bore, said through hole is covered and includes a fusion at an interface between two exposed mating

surfaces defining said cup and said second bore, thus securing said cup with said case.

[c2] 2. The apparatus of claim 1, wherein said fusion includes a fusion process with or without addition of a binder material.

[c3] 3. The apparatus of claim 1 wherein said second bore is smaller in diameter than said first bore.

[c4] 4. The apparatus of claim 3 wherein said second bore is less than half a diameter of said first bore.

[c5] 5. The apparatus of claim 1 wherein said second bore extends substantially perpendicular from said surface defining said opposite side.

[c6] 6. The apparatus of claim 1 wherein said second bore includes two bores.

[c7] 7. The apparatus of claim 1 wherein said fusion includes a laser weld.

[c8] 8. The apparatus of claim 1 wherein said metal probe case is one of a cylindrical and a rectangular metal probe case.

[c9] 9. The apparatus of claim 1 wherein a centerline of said second bore intersects a centerline defining the axis of a

cylindrical metal probe case.

[c10] 10. The apparatus of claim 1 wherein said metal probe case is configured with a bore to enclose the extension cable extending from the offset proximity probe.

[c11] 11. The apparatus of claim 1 wherein said fusion is done after electronic components are installed in the proximity probe secured in said metal interface cup.

[c12] 12. A method for attaching a proximity probe offset to an axis defining a metal probe case and an extension cable extending therefrom comprising:
securing the proximity probe with a metal interface cup;
configuring a metal probe case with a first bore extending from one side toward an axis defining a length of said metal probe case;
configuring said bore to accept said metal interface cup while leaving a tip of the proximity probe exposed;
mating a bottom surface defining said metal interface cup opposite said tip with a first surface defining a closed end of said first bore;
configuring said metal probe case with a second bore extending from a substantially opposite side of said one side, said second bore extending perpendicular from a surface defining said opposite side, wherein only a portion of said second bore intersects said first surface of

said first bore creating a through hole into said first bore;

disposing said metal interface cup in said first bore covering said through hole; and

fusing an interface between two exposed mating surfaces defining said cup and said second bore, thus securing said cup with said case.

[c13] 13. The method of claim 12, wherein said fusing includes a fusion process with or without addition of a binder material.

[c14] 14. The method of claim 12 further comprising:

configuring said second bore smaller in diameter than said first bore.

[c15] 15. The method of claim 14 wherein said second bore is less than half a diameter of said first bore.

[c16] 16. The method of claim 12 wherein said second bore extends substantially perpendicular from said surface defining said opposite side.

[c17] 17. The method of claim 12 wherein configuring said second bore includes configuring two bores.

[c18] 18. The method of claim 12 wherein said fusing includes laser welding.

[c19] 19. The method of claim 12 further comprising: configuring said metal probe case as one of a cylindrical and a rectangular metal probe case.

[c20] 20. The method of claim 12 wherein a centerline of said second bore intersects a centerline defining the axis of a cylindrical metal probe case.

[c21] 21. The method of claim 12 further comprising: configuring said metal probe case with a bore to enclose the extension cable extending from the offset proximity probe.

[c22] 22. The method of claim 12 wherein said fusing is done after electronic components are installed in the proximity probe secured in said metal interface cup.